Overview of Precast Concrete Pavement Systems for Rapid Repair, Rehabilitation, and Construction of Rigid Pavements

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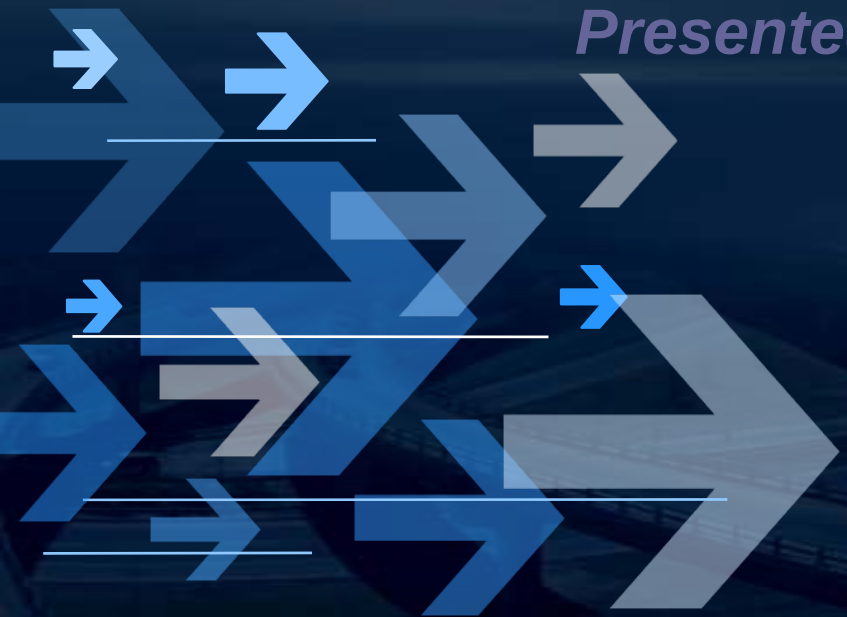
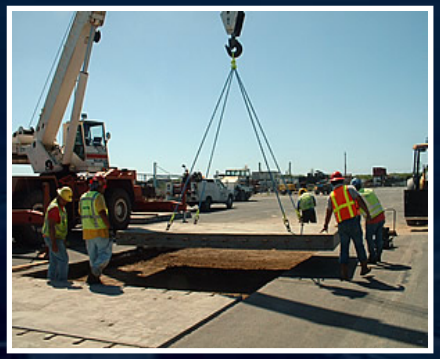


U.S. Department of Transportation
Federal Highway Administration

What are PCPS Systems?

Ft. Miller - SuperSlab™

Prestressed Precast Concrete Pavement



Kwik Slab™

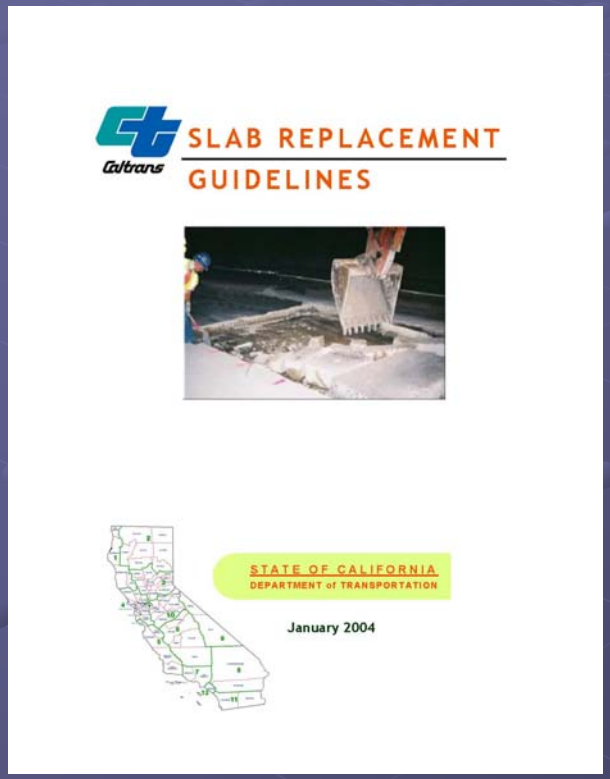
Uretek USA™

FDR/DBR

Why Use Precast Concrete Pavement Systems?

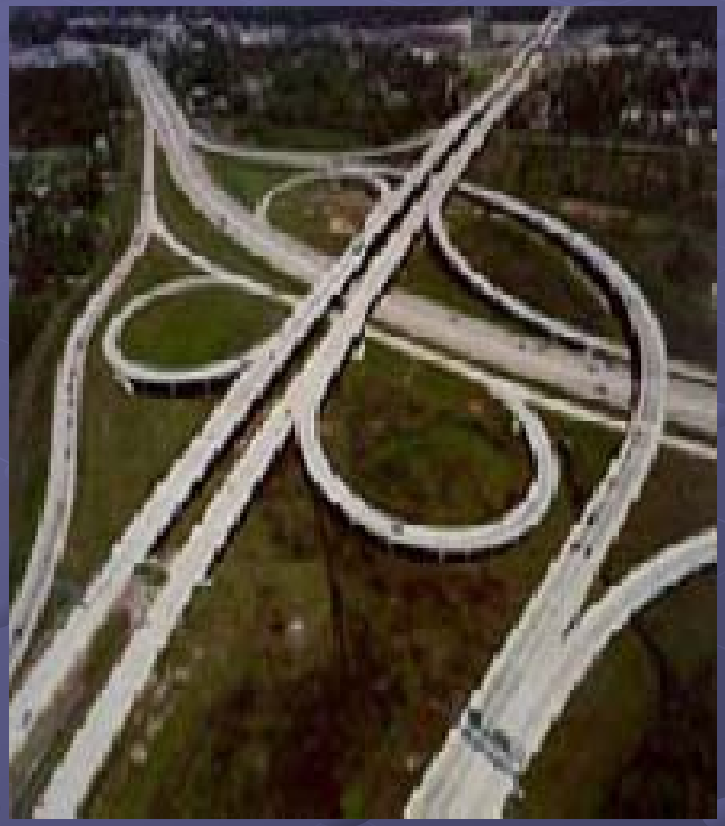
- Fabricated in Factory Environment
  - Higher Quality Control than field
  - Environmental Control –improved curing
  - Results in less residual stresses in slabs
- Installed Quickly – less risk!!!
- Can be open to traffic without final slab under-seal
- Durable Pavement Treatment that has been tested to over 140 million ESAL's
- Cost Competitive with Rapid Set Concretes

Project Scoping
Pavement Evaluation



- **Agency Established Protocols for Pavement Treatment Selection**
- **Assessment Criteria of Pavement and Pavement Foundation**

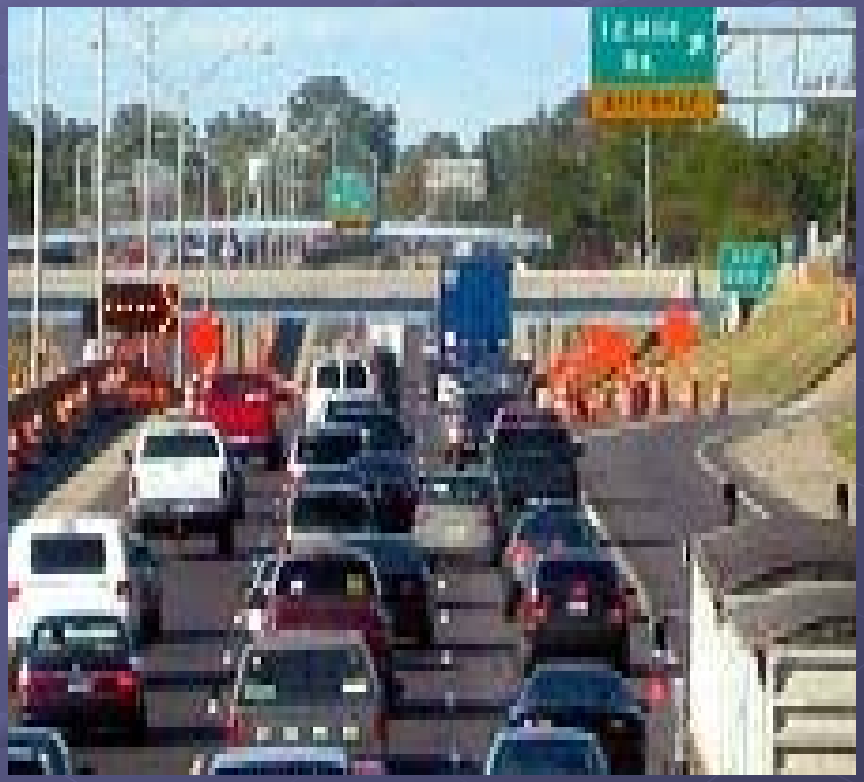
Project Scoping
Capacity Restrictions/Lane Closures



What are the limitations of our Maintenance of Traffic configuration?

How does this effect my pavement treatment selection alternatives?

Pavement Treatment Selection Options -Based upon Lane Occupancy Limits



RECOMMENDED GUIDELINES

24 hours or more = Traditional CIP Methods

Between 12 -24 hours = Rapid Set Concrete

Less than 12 hours = Precast Concrete Pavement System

Types of PCPS Systems

Jointed Precast Systems

- **Intermittent Repair & Rehabilitation**
- **Continuous Pavement**

Prestressed Precast Systems

- **Limited Intermittent Rehabilitation**
- **Continuous Pavement**

Engineering Details of PCPS

- Type of system employed
- Slab thickness
- Slab geometry
- Joint matching needs
- Load transfer
- Reinforcing steel
- Material handling
- Encasement Material
- Subgrade requirements
- Bedding requirements
- Pre & Post-tension requirements
- Surface texture
- Ride Quality
- Load Transfer Efficiency
- Slab installation procedures

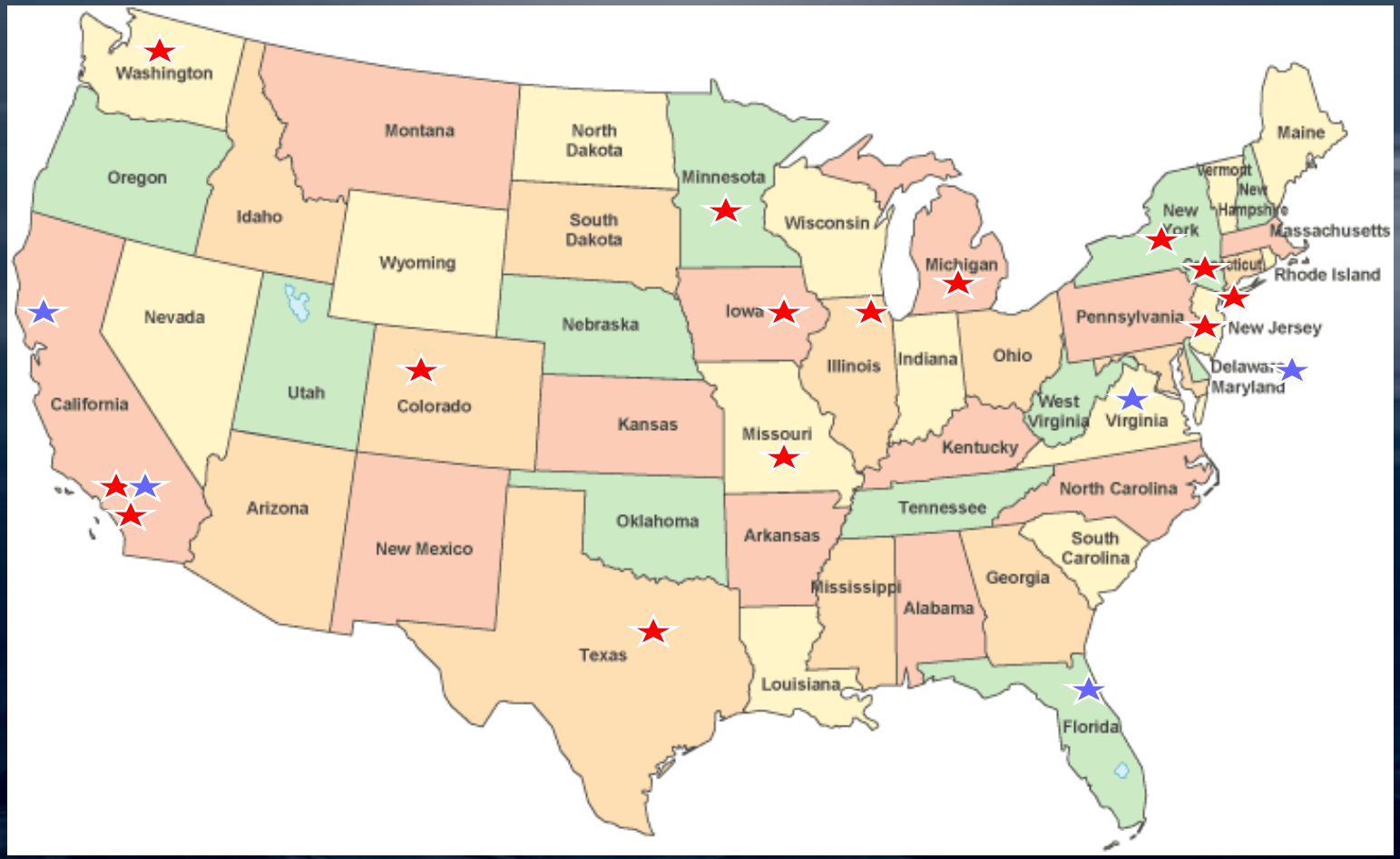
Construction Details of Installing PCPS

- Material handling equipment needs
  - Footprint requirements
- Various slab lift out methods
- Sub-base preparation needs
- Installation and preparation of Load Transfer devices
- Slab leveling & alignment needs
  - Slab under-seal
- Encasement material placement
- Contractor crew learning curve & productivity

Applications of PCPS

- Intermittent Repair
- Continuous Pavement
- Toll Plaza
- Bridge Approach
- Intersections
- Airport Runway
- Airport Taxiway
- Under Bridges
- Port Loading Pads
- Roundabouts
- Utility Cuts
- Tunnels
- Over poor Sub-base
- Radiant Heat-Snow & Ice control
- Interchange Ramps
- Architectural Cross-walks

PCPS Paving Applications Around the Nation



Summary

- You should now know:
  - Different types of PCPS systems & various applications
  - Reasons why a PCPS treatment is selected
  - Advantages of PCPS
  - Basic understanding of Engineering & Construction details of PCPS

Summary

For the next 24 hours, you should be hearing about these basic principles and practices as they are applied to this specific project.

I encourage you to ask any question about PCPS throughout this workshop. I'm confident that we've got the right people here to get you the answers.

Thank you !

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To find out more details about Precast Pavements look at WWW.AASHTOTIG.ORG